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PATENT ABSTRACTS OF JAPAN

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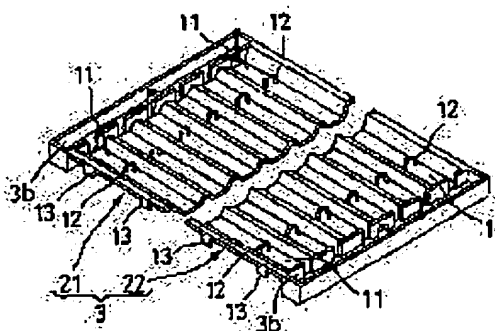
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(54) BACK-LIGHT DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To form a large reflector with multiple small reflector components by dividing the reflector into multiple reflector components.

SOLUTION: A reflector 3 is divided into the first and second reflector components 21, 22. The first and second reflector components 21, 22 are formed with a synthetic resin into the same shape. Positioning lugs 13, 13... for positioning and fixing in a chassis 6 are provided at one-side sections of the first and second reflector components 21, 22. The reflector 3 is divided into multiple reflector components 21, 22 in this back-light device, and the large reflector 3 can be formed with multiple small reflector components 21, 22, and a large molding die required for an integrally molded reflector is not required.



LEGAL STATUS

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CLAIMS

[Claim(s)]

[Claim 1] It is back light equipment characterized by being formed when the reflecting plate made of the above-mentioned synthetic resin combines two or more reflecting plate constructs in back light equipment equipped with the reflecting plate of the product made of synthetic resin in which the light of an emitter and the above-mentioned emitter is reflected, and the diffusion plate which diffuses the light from the above-mentioned emitter and a reflecting plate.

[Claim 2] It is back light equipment characterized by forming the reflecting plate construct in the same configuration in claim 1.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the back light equipment used as a back light of a liquid crystal panel etc.

[0002]

[Description of the Prior Art] As back light equipment used for a liquid crystal panel etc., what was shown in the sectional view of drawing 8 is known. The fluorescence tubing 102--102 of plurality [equipment / 101 / above-mentioned / back light] as an emitter, The diffusion plate 103 arranged at the front-face side (top-face side of drawing 8) of these fluorescence tubing 102--102 (optical diffusion plate), It has the mounting beam chassis 105 and covering 106 for the reflecting plate 104 made of synthetic resin arranged at the tooth-back side of the above-mentioned fluorescence tubing 102--102, the above-mentioned fluorescence tubing 102--102 and the diffusion plate 103, and the reflecting plate 104. And the light reflected with the above-mentioned fluorescence tubing 102--102 and the above-mentioned reflecting plate 104 is diffused with the above-mentioned diffusion plate 103, and is applied by the liquid crystal panel of a graphic display abbreviation.

[0003] The reflecting plate 104 made of the above-mentioned synthetic resin is formed in one by injection molding synthetic resin. The crevice 111--111 for making the above-mentioned reflecting plate 104 turn and reflect efficiently the light of the above-mentioned fluorescence tubing 102--102 in the above-mentioned diffusion plate 103 side is formed in juxtaposition at the 1 side-face side.

[0004]

[Problem(s) to be Solved by the Invention] By the way, since the above-mentioned conventional back light equipment 101 formed the reflecting plate 104 in one with synthetic resin as mentioned above, it had the trouble which is described below.

[0005] (1) As a reflecting plate 104 becomes large-sized, productive efficiency worsens (cycle time becomes long), and a production cost becomes higher.

[0006] (2) As a reflecting plate 104 becomes large-sized, curvature, bending, etc. occur and

quality maintenance of a reflecting plate 104 becomes more difficult.

[0007] (3) If a reflecting plate 104 becomes large-sized, the metal mold for fabricating this will also become large-sized, and the cost of metal mold will also become high.

[0008] This invention enables it to solve the above-mentioned conventional trouble by dividing and forming a reflecting plate in two or more reflecting plate constructs.

[0009]

[Means for Solving the Problem] This invention enabled it to form a large-sized reflecting plate from two or more small reflecting plate constructs in back light equipment equipped with the reflecting plate of the product made of synthetic resin in which the light of an emitter and an emitter is reflected, and the diffusion plate which diffuses the light from the above-mentioned emitter and a reflecting plate by constituting the reflecting plate made of the above-mentioned synthetic resin from two or more reflecting plate constructs.

[0010]

[Embodiment of the Invention] Next, with reference to drawing 1 - drawing 7 , the back light equipment 1 of this invention is explained. Drawing 1 is the decomposition perspective view of back light equipment 1. The above-mentioned back light equipment 1 The fluorescence tubing 2--2 as two or more emitters, The reflecting plate 3 made to reflect the light of these fluorescence tubing 2--2, and the diffusion plate 4 which is made to diffuse the light from the above-mentioned fluorescence tubing 2--2 and a reflecting plate 3, and hits against the liquid crystal panel of a graphic display abbreviation, It has the chassis 6 which attaches the drive circuit board 5 of the above-mentioned fluorescence tubing 2--2, the above-mentioned fluorescence tubing 2--2 and a reflecting plate 3, and diffusion plate 4 grade, and covering 7.

[0011] While the rectangle-like cube type injection molds the above-mentioned reflecting plate 3 with synthetic resin and wave-like reflector section 3a is prepared in the center section, the hold sections 3b and 3b of the above-mentioned drive circuit board 5 are formed in the both-sides section of this reflector section 3a.

[0012] As shown in drawing 2 , the above-mentioned reflector section 3a has a number corresponding to the number of the above-mentioned fluorescence tubing 2--2 of crevices 11--11, and as the two-dot chain line showed to the center section of these crevices 11--11, the above-mentioned fluorescence tubing 2 is arranged, respectively.

[0013] While base 11a of the above-mentioned crevice 11 is formed in the parallel flat side to the diffusion plate 4, the both-sides sides 11b and 11c of the above-mentioned crevice 11 are formed in the inclined plane of 45 degrees of abbreviation to the above-mentioned diffusion plate 4. The hook-like clamp section 12 is formed in base 11a of the above-mentioned crevice 11, and the fluorescence tubing 12 is held to the above-mentioned crevice 11 by this clamp section 12.

[0014] As shown in drawing 3 , the above-mentioned reflecting plate 3 is divided into two

reflecting plate constructs, the 1st and the 2nd, 21 and 22. The above 1st and the 2nd reflecting plate construct 21 and 22 are formed in the same configuration with synthetic resin. The locating lug 13--13 for positioning and fixing in the above-mentioned chassis 6 is formed in one flank of the above 1st and the 2nd reflecting plate construct 21 and 22.

[0015] Next, an example of the assembly approach of the above-mentioned back light equipment 1 is explained. As shown in drawing 4, the 1st and 2nd reflecting plate construct 21 and 22 is inserted into a chassis 6. It fits into the pore 15 of the projection engagement piece 14--14 which carried out louvering formation of the locating lug 13--13 prepared in one flank of the above 1st and the 2nd reflecting plate construct 21 and 22 at this time at side-attachment-wall 6a of said chassis 6, and the above 1st and the 2nd reflecting plate construct 21 and 22 are positioned. Next, the U character-like radiator 16 (refer to drawing 1) is laid in the both ends of the fluorescence tubing 2--2, the above-mentioned fluorescence tubing 2 is laid in the center section of the crevice 11 of the above-mentioned reflecting plate 3 after a mounting beam, and it clamps by the clamp member 12. Next, the drive circuit board 5 is contained to drive circuit board hold section 3b prepared in the both-sides section of the above-mentioned reflecting plate 3, and the fluorescence tubing 2 is connected with this drive circuit board 5 with lead wire 17. Next, back light equipment 1 is assembled by carrying the diffusion plate 4 on the above-mentioned chassis 6, putting covering 7, and combining the above-mentioned chassis 6 and covering 7 with a screw etc.

[0016] Drawing 6 and drawing 7 show the modification of a reflecting plate 3. the 1st modification shown in drawing 6 -- setting -- a reflecting plate 3 -- the 1- it is divided into the 4th four reflecting plate construct 31-34. above-mentioned the 1- the 4th reflecting plate construct 31-34 is formed in the same configuration with synthetic resin, and is constituted as a reflecting plate 3 by inserting in a chassis 6.

[0017] the 2nd modification shown in drawing 7 -- setting -- a reflecting plate 3 -- the 1- it is divided into the 6th six reflecting plate construct 41-46. above-mentioned the 1- the 6th reflecting plate construct 41-46 is formed in the same configuration with synthetic resin, and is constituted as a reflecting plate 3 by inserting in a chassis 6. In addition, in the example shown in the drawing, a reflecting plate 3 may be divided still more finely, although two division, quadrisection, and the case where it divided into six were shown. Moreover, although the case where the reflecting plate construct which constitutes a reflecting plate 3 from an example was formed in the same configuration was shown, it is necessary to not necessarily form no reflecting plate constructs in the same configuration.

[0018]

[Effect of the Invention] There is effectiveness which is described below in the back light equipment of this invention.

[0019] (1) Since the back light equipment of claim 1 divided the reflecting plate into two or

more reflecting plate constructs, it can constitute a big reflecting plate from two or more small reflecting plate constructs, and becomes unnecessary [large-sized shaping metal mold] like the reflecting plate of the conventional one shaping. Moreover, cycle time can be shortened and productive efficiency can be gathered. Moreover, the bending generated unescapable can really be prevented to the large-sized reflecting plate of shaping.

[0020] (2) Since the back light equipment of claim 2 formed in the same configuration two or more reflecting plate constructs which constitute a reflecting plate, it can constitute a large-sized reflecting plate, without increasing components mark (class).

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The decomposition perspective view of back light equipment.

[Drawing 2] The A-A line sectional view of drawing 1 .

[Drawing 3] The decomposition perspective view of a reflecting plate construct.

[Drawing 4] The side elevation showing the assembly to the chassis of a reflecting plate construct.

[Drawing 5] The decomposition sectional view of an important section.

[Drawing 6] The perspective view of the 1st modification of a reflecting plate construct.

[Drawing 7] The perspective view of the 2nd modification of a reflecting plate construct.

[Drawing 8] The sectional view of the conventional example.

[Description of Notations]

1 [-- 21 A diffusion plate 22 / -- Reflecting plate construct.] -- Back light equipment, 2 -- Fluorescence tubing, 3 -- A reflecting plate, 4

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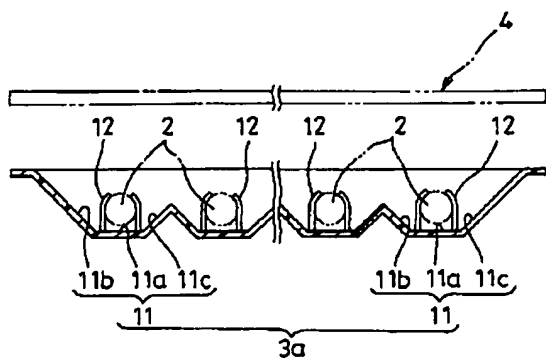
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DRAWINGS

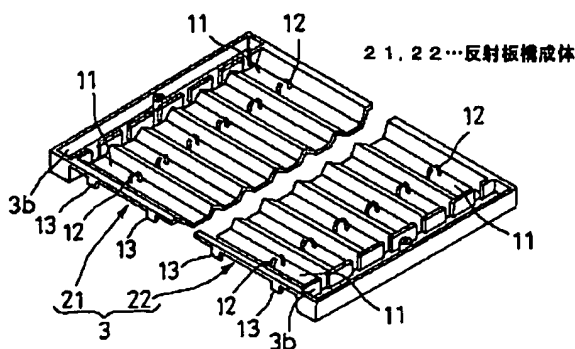
[Drawing 2]

図1のA-A線断面図

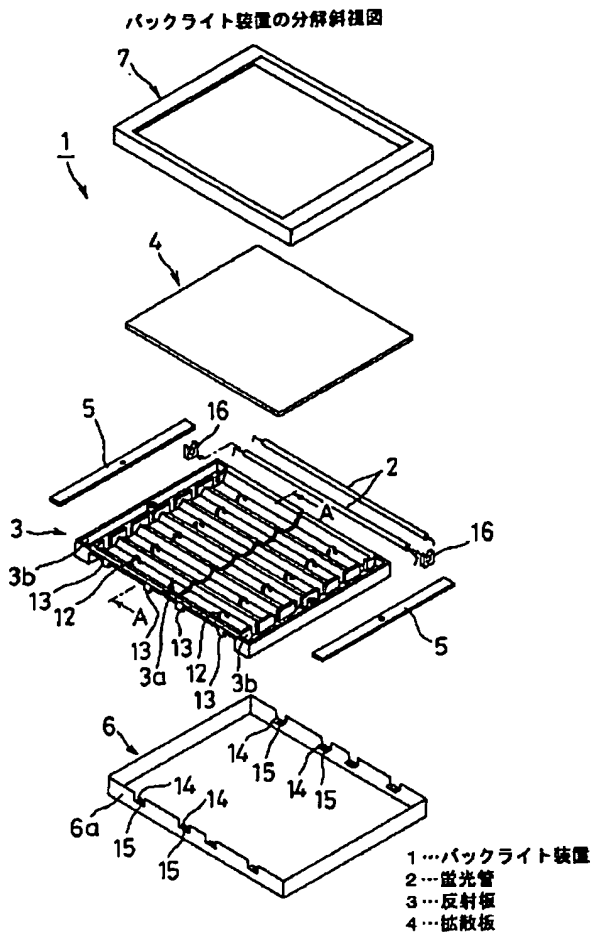


[Drawing 3]

反射板構成体の斜視図

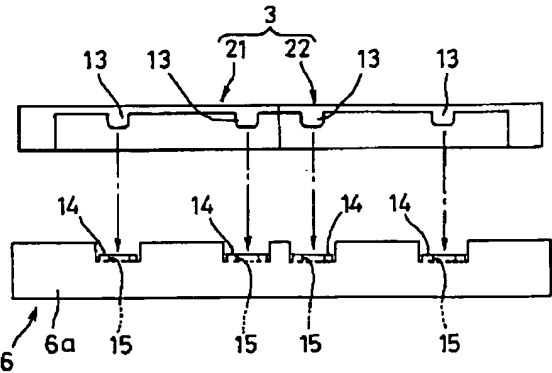


[Drawing 1]

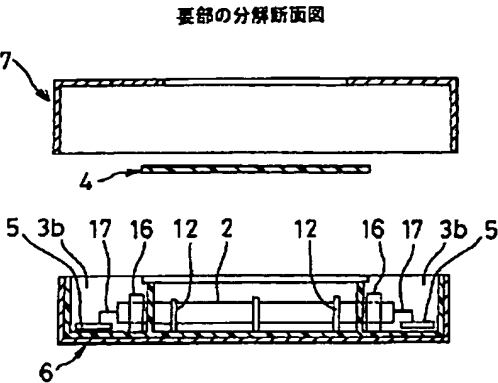


[Drawing 4]

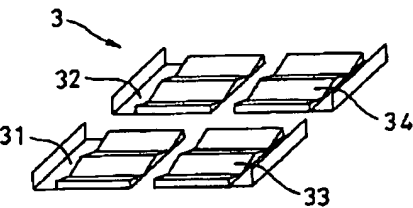
反射板構成体のシャーシへの組付けを示す側面図



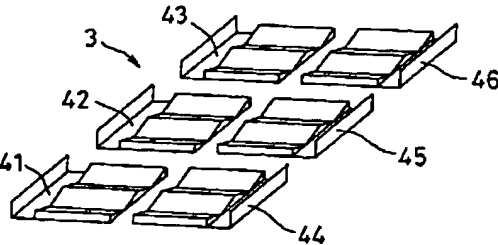
[Drawing 5]



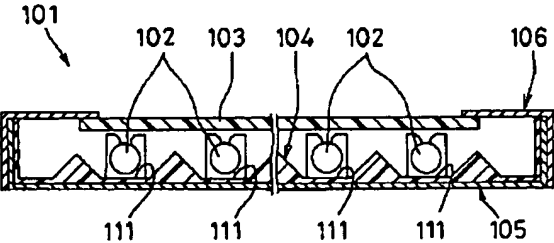
[Drawing 6]
反射板構成体の第1の変形例の斜視図



[Drawing 7]
反射板構成体の第2の変形例の斜視図



[Drawing 8]
従来例の断面図



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